Hannegan

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

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ARTHUR G. GIRTON, Executor of the Estate of John R. Gunsalus, Plaintiff	:	CIVIL ACTION NO. 85-7180
v.	:	Philadelphia, Pennsylvania June 20, 1988
THE AMERICAN TOBACCO CO., Defendant	:	

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AFTERNOON SESSION
JURY TRIAL - VOLUME NINE
BEFORE THE HONORABLE NORMA L. SHAPIRO, J.
UNITED STATES DISTRICT JUDGE

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APPEARANCES:

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AFTERNOON SESSION

(1:45 p.m.)

THE COURT: You may be seated. We have some of those designations and counterdesignations.

(Jury in at 1:46 p.m.)

THE COURT: Mr. Mannino?

MR. SHEFFLER: Your Honor, American Tobacco Company calls as its next witness Dr. Michael Hannegan.

THE COURT: All right. Is Dr. Michael Hannegan here? Will you come to the witness stand, please?

DR. MICHAEL HANNEGAN, Defendant's Witness, Sworn.

DIRECT EXAMINATION

BY MR. SHEFFLER:

Q Doctor, what is your profession?

A I'm a pathologist.

Q And are you currently licensed as a physician?

A I am.

Q Where are you currently employed?

A I'm employed at the Mount Sinai Hospital in South Philadelphia.

Q And what is your title?

A I am Chief of Pathology.

Q Doctor, would you briefly describe your education after high school, sir?

A I attended Harvard College in Cambridge, Massachusetts,

graduating in 1956 with an A.B. degree. Subsequent to that time I went to the University of Missouri, where I attended medical school, graduating in 1960.

Q And what did you do after medical school, Doctor?

A I took a rotating internship and pathology residency all at Letterman General Hospital in San Francisco.

Q Doctor, is that an Army facility?

A Yes, it is.

Q Were you in the Army at that time?

A I was.

Q And when did you join the Army, Doctor?

A I received a reserve commission in 1958, went on active duty in 1960.

Q Doctor, on the completion of your residency at Letterman, did you take your boards for pathology?

A Yes, I took my boards and passed them in 1965.

Q And what boards were they, Doctor?

A Those were the Board in Anatomic and Clinical Pathology offered by the American Board of Pathology.

Q What did you do next, Doctor?

A I was assigned overseas to the 20th Station Hospital in Nuremburg, Germany.

Q And, Doctor, what was your responsibilities at that hospital?

A I was the pathologist for a period -- approximately

10,000 square miles and 60,000 U.S. Army troops and dependents.

Q In addition to your anatomical and clinical pathologic work, Doctor, did you also do forensic pathology at that time?

A I applied -- yes.

Q What's forensic pathology, Doctor?

A Forensic pathology is the application of pathologic techniques to the investigation of illness, injuries or such materials that might lend to legal proceedings.

Q Did you testify in connection with your work?

A I did.

Q Doctor, have you testified other than in military courts?

A Yes, I testified in German criminal court and here in the City of Philadelphia.

Q Doctor, when did you come back to the United States?

A I returned to the United States in 1968.

Q And what was the purpose for your return?

A My tour of duty was up and I had been assigned to a course at the Walter Reed Army Institute of Research in Washington, DC.

Q And what subjects did you study there?

A That was a course entitled "Military Medicine and Allied Sciences," where the study was that of a physiology,

pharmacology and infectious diseases as applied to medicine and their newer updates, as well as to the military in particular.

Q Did you have any other advance training, Doctor?

A Yes, subsequent to the course in Washington, DC, I traveled to the University of Missouri and Columbia, where I took a year's fellowship in information science.

Q And what did that cover, Doctor?

A It is the study of, in this particular instance, since I was a physician we were applying the science of computer science and information storage and retrieval to the discipline of medicine and particularly medicine in the military.

Q What was the basis for this computerized work?

A Well, much of the work that we were doing there as an ancillary part of it had been some of the spinoff, if you will, from the space program.

THE COURT: Could you keep your voice up? I'm having trouble hearing you.

THE WITNESS: I'm sorry, yes.

BY MR. SHEFFLER:

Q Did you teach while you were at the University of Missouri?

A Yes, I had an appointment at the University of Missouri Pathology Department during that time.

Q And did you teach pulmonary pathology there?
A As part of the course in pathology, yes.
Q And who were your students?
A Medical students and residents at the University of Missouri Medical Center.
Q Have you had any other occasion to teach pathology, Doctor?
A Yes, I've taught pathology at the Uniform Services University of Health Sciences at Bethesda, Maryland, and at the University of Pennsylvania.
Q Doctor, after your teaching at Bethesda, what did you do?
A I at that point in 1982 left the Army and joined practice at Graduate Hospital here in Philadelphia.
Q Doctor, were you involved in work at the AFIP?
A Yes, that was at the same time I was teaching at the Uniform Services I was actually assigned at the AFIP of the Armed Forces Institute of Pathology.
Q Would you tell us what the Armed Forces Institute of Pathology is?
A The Armed Forces Institute of Pathology is an outgrowth of a museum and study group established by the Surgeon General of the Army in the -- during the Civil War to study the effects of injury and disease on battle casualties.
Q And, Doctor, today does the Armed Forces Institute of

Pathology study diseases in addition to battlefield diseases?

A Oh, indeed, it studies diseases, infectious diseases and tumors on a world-wide as well as a local, civilian basis.

Q Doctor, is it a consultation organization?

A Yes, it provides consultation to physicians, not just pathologists, but physicians in general throughout the world.

Q And does it have a mechanism by which it can update pathologists in the field of cancer pathology? Could you describe that for us, please?

A Yes. It's not only a consultative service, but it has a research and educational mission as well. And during -- and as a part of that educational mission, it provides or makes available for loan, we call them, study sets. They're collections of glass slides and/or transparencies, 35 millimeter slides usually accompanied by a syllabus which in fact described the histology, what was felt to be the importance of that histology in the diagnosis of the disease and its ramifications for the patient that might subsequently develop such a legion.

Q Were any of those study sets developed while you were there or under your direction?

A Part of my function while I was there was to oversee the production of those slides and study sets.

THE COURT: I may have forgotten, but would you just briefly tell us what histology is compared to pathology? Very briefly.

THE WITNESS: I'm sorry, histology is, in fact, the appearance of tissue under a microscope and its composition, whereas pathology encompasses the entire range of disease, of a disease process.

BY MR. SHEFFLER:

Q Doctor, I believe you were telling us about the study sets that you were involved in preparing?

A Yes. Under my group there was the production side of those study sets. They took the tissue and cut it and produced the slides and stained them so that they could then be put together with the syllabus that was prepared by the editorial office, also under my direction, in conjunction with the other physicians and pathologists at the institute so that they would then in their total be a study set for loan.

Q Was there a study set on asbestos and asbestos-related disease created while you were at the AFIP, Doctor?

A Yes. In fact, there were two of them created, one that was 35 millimeter transparencies and one that were glass slides made up of human tissue.

Q Doctor, when did you retire from the army?

A 1982.

Q And what was your rank at that time?
A I was a Colonel.
Q And is that the time you joined the staff at Graduate Hospital?
A Yes.
Q Have you done any research or studies on pulmonary pathology at Graduate Hospital, Doctor?
A Yes. I was particularly interested in that as a means of developing a program with the -- with residents in pulmonary fellowship at the Graduate, and as a result made sure that we had a couple of techniques available to us for both autopsy and tissue material so that should such a situation arise, we would be able to demonstrate them appropriately.
Q Have you continued to teach pathology since leaving the AFIP?
A Yes. As I mentioned, I also teach at University of Pennsylvania.
Q And does that include pulmonary pathology?
A Yes.
MR. SHEFFLER: Your Honor, at this time I would like to tender Dr. Hannegan as an expert in the area of pathology.
THE COURT: Do you wish to question on qualifications?

MR. JOHNSON: Just a few questions, your Honor.

VOIR DIRE EXAMINATION

BY MR. JOHNSON:

Q The -- in your curriculum vitae while you were in the service, you have a number of presentations that were made. Are you familiar with your own curriculum vitae, Doctor?

A Yes.

Q The vast majority of those presentations were in the field of computer science as it applies -- applied to the medical profession, isn't that right?

A That's correct.

Q And the vast majority of any papers you wrote while you were in the service were in the field of computer science and as it related to the medical profession, isn't that right?

A That's a majority, yes.

Q Have you ever written a paper on lung cancer?

A Not on lung cancer, no.

Q Have you ever written a paper on the effects of cigarette smoking?

A No.

Q Have you ever written a paper on the effects of asbestos?

A No.

Q Q Is there any presentation listed in your curriculum

vitae which concerns lung cancer?

A Not lung cancer, no.

Q How about the effects of cigarette smoking?

A No.

Q How about the effects of asbestos on the human body?

A No.

MR. JOHNSON: No further questions, your Honor.

MR. SHEFFLER: May I proceed, your Honor?

THE COURT: Yes. I can't remember if you made an offer to allow him to testify as an expert in pathology, but if you did, you may do so.

CONTINUED DIRECT EXAMINATION

BY MR. SHEFFLER:

Q Dr. Hannegan, what materials have you reviewed in this case?

A I have reviewed the autopsy slides, I have reviewed the original diagnostic slides from the Veterans Administration and the associated medical records that are a part of those activity.

Q Did you review any depositions?

A I have. I have reviewed several. I'm sorry, I can't list off the top of my head every one that I did.

Q Do you recall if you reviewed the deposition of the pathologist who performed the autopsy at plaintiff's request in this case?

A Yes, I did.
Q On the basis of your review of these materials, Doctor, are you able to give an opinion about the cause of death of Mr. Gunsalus?
A Yes.
Q And what is your opinion?
A My opinion is that Mr. Gunsalus died as a result of a disseminated, well differentiated neuroendocrine tumor of the lung, carcinoma of the lung.
Q Do you hold that opinion with a reasonable degree of medical certainty, Doctor?
A I do.
Q Now, Doctor, are there different kinds of cancer that may arise in the lung?
A Yes.
Q How are they classified, sir?
A Well, there are several classifications. One our classification is a very broad separation. It separates a group of tumors from what we would class as small cell versus non-small cell; that's the broadest of the classifications and then there are other classifications which in fact subdivide those small cell and non-small cell differentiations.
Q Now, Doctor, have we prepared a chart at your direction that would help you explain this class of your system?

A I believe so, yes.

MR. JOHNSON: Your Honor, may we see you at sidebar?

THE COURT: Yes.

(Sidebar discussion held on the record as follows:)

MR. JOHNSON: Your Honor, I would like to lodge an objection to the use of the charts and other visual aids which I first saw about 20 minutes ago. We were called at 8 o'clock last night and told if we wanted to come downtown to look at this material, we could do so at 9:00 at their law offices. I don't believe that's in compliance with your Honor's order.

MR. SHEFFLER: I'd just like to add --

MR. JOHNSON: And this morning when I came in and told them, they weren't here.

(End of sidebar discussion.)

THE COURT: I'll excuse the jury for a few minutes, please.

MR. SHEFFLER: Would you like me to respond now, your Honor? I would like to make a comment.

THE COURT: Yes, you may, as soon as we get the jury out.

(Jury exits the courtroom at this time.)

(Sidebar discussion continued on the record as follows:)

THE COURT: What is your comment?

MR. SHEFFLER: I spoke to Dr. Hannegan, as I think your Honor is well aware.

THE COURT: Yes.

MR. SHEFFLER: The slides that we had made pictures of previously were -- had to be given back to Mr. Johnson, the slides were overexposed. I asked for the slides back; Mr. Johnson gave them back, but it was not until they were late. We had pictures made from the slides. I had developed those pictures, I had met with Dr. Hannegan on Sunday to make a final determination of which slides he was going to use. I called Mr. Childs, I told him what we were going to use, I described it to him. I said it's available for him to see. Mr. Childs said he did not want to come down, he accepted my representations of what they were, he described them and I told them what they were.

THE COURT: Was that at 8 o'clock last night?

MR. SHEFFLER: That's right.

THE COURT: Well, you see, one of the problems, I must say is that we have too many lawyers in court and not enough lawyers doing what needs to be done outside the courtroom. When was the chart ready?

MR. SHEFFLER: The chart was prepared after I met with Dr. Hannegan.

THE COURT: Well, I don't know if it was prepared

in the middle of the night or was prepared all day yesterday.

MR. SHEFFLER: It was prepared yesterday after we discussed it.

THE COURT: When was it ready?

MR. SHEFFLER: Yesterday afternoon, approximately. He told me what to put on the chart, I had made a sketch of it.

THE COURT: Well, when was the chart finished is what I'm asking you.

MR. SHEFFLER: It was almost finished by 8 o'clock.

THE COURT: Last night?

MR. SHEFFLER: That's right.

THE COURT: Well, first of all, where is the chart?

MR. JOHNSON: There's two charts I believe, your Honor.

(Discussion off the record.)

MR. SHEFFLER: Your Honor, I'd also like to point out that I saw Dr. Pietra's transparencies and slides immediately before he testified.

THE COURT: I'm not going to get into it. I'm going to try and decide how if at all Mr. Johnson is prejudiced in this matter.

MR. JOHNSON: I'll be happy to explain. First of

all, obviously the suggestion that we come down at 9 o'clock on a Sunday night to look at their material is not what you would call helpful, but that's not really the problem. The real problem is I had my pathologist here this morning. I said to Mr. Sheffler "Where is the stuff you're going to use with Hannegan?" He said, "Well, it will come later." It came later at 2 o'clock. I would have liked to have had Dr. Pietra --

THE COURT: Well, I just don't understand something. First of all, the chart he's got with all these lines about the oat cell, the undifferentiated, you could cope with; I mean, it's nothing more than he could say and put on a graph. So while it's very discourteous to do it in this way, it really doesn't affect your rights in any way at all. But I don't understand why, if we had this fight, you didn't tell me this morning or before lunch or before the witness was excused. If you're going --

MR. JOHNSON: Because I didn't know what it was.

THE COURT: Well, you could have said --

MR. SHEFFLER: All I told you last night.

THE COURT: You could have said there were some charts I haven't seen, and therefore I would ask -- and I would have ordered them maybe not to have Hannegan this afternoon, but to have him tomorrow. But you deliberately create these mousetraps, because if you had told me this

morning I could have coped with it. You tell me now, he's on the stand, I am not going to preclude the use of these charts because you have had every visual aid you needed to show and he is entitled to the visual aids that he needs to show in his case.

Now, if you are prejudiced in any way by the use of those slides, I'll recall him tomorrow and you can cross-examine him after you've had all night to talk to your pathologist. But this could have been dealt with very simply this morning, we could have read depositions this afternoon and had him come tomorrow and you would have had the time to look at it. I'm not excusing Mr. Sheffler for thinking that Sunday night at 9 o'clock is an appropriate time. It is not.

MR. SHEFFLER: I understand.

THE COURT: And I don't think that you can have 11 lawyers here and deal with a witness on Sunday that late. But besides that I have a problem of what to do about it now that it has arisen, and I fault you also for not calling to my attention the problem this morning. You knew there would be trouble. You knew you hadn't seen the charts and if you had told me about it, I would have done something about it. Now we'll have him finish his testimony and I'll recall him so you can cross-examine him after you've studied them.

MR. JOHNSON: Thank you, your Honor.

THE COURT: Wait a minute. What else?

MR. SHEFFLER: It might be a problem if you call him in the morning because Dr. Hannegan is a practicing pathologist and he's unavailable in the mornings. He's on call, he's (inaudible).

THE COURT: Well, it's very close to here. He can run down and back. It's only ten minutes by cab.

How long do you expect your direct examination to take?

MR. SHEFFLER: It won't be long. It should be no more than an hour on the outside.

THE COURT: Well, do you want to consult with Mr. Mannino or do you want to excuse him now and he'll come back tomorrow afternoon and then they won't have the advantage of 48 hours to plot their cross-examination?

MR. SHEFFLER: Principally, your Honor, what the purpose of --

THE COURT: Well, you'd like to know his cross-examination, I suppose that too.

MR. SHEFFLER: No, no.

THE COURT: Mr. Mannino and Mr. Childs.

MR. SHEFFLER: Your Honor, if I may point out that when Dr. Pietra came with the slide (inaudible).

THE COURT: Did you raise it?

MR. SHEFFLER: Your Honor, we requested the slides

in advance.

THE COURT: I have no doubt that there have been things going on for both sides that shouldn't go on. I can only cope with what's called to my attention. I made the mistake of thinking that opposing counsel would deal with one another in a professional way. It's a mistake I made at the beginning of the trial and it's proved that I was wrong about ten or twenty times, but I don't have the alternative, in my view, of calling off the trial and starting all over again. It may eventually be necessary to do that, but I thought in the interests of these jurors that we will plow ahead and reach a verdict. If I conclude that it's not in the interest of justice, whatever it is, then I have to declare a new trial. I have criticized parties for both sides for not doing their designations ahead of time, for having me engulfed in all that to an extraordinary -- but again it's the most I've ever had to do in any trial. All this should have been done ahead of time. I am sorry that I didn't order it and ask you like kindergarten children whether you'd done it in advance. I assumed that all charts and all slides had been exchanged prior to trial because that's what my order said. Now, that has not been true on either side and Mr. Johnson comes with things you haven't seen, you come with something he hasn't seen.

MR. SHEFFLER: I offered to show him the slides.

THE COURT: You offered to show him at 9 o'clock on Sunday night, it's Father's Day. What's the matter with you, Mr. Sheffler, that's an absurdity.

MR. SHEFFLER: That's the first time --

THE COURT: I haven't made you live like automatons just because you're on trial, I allow you to have some reasonable time to be with your family. It's ridiculous to say you called him at 9 o'clock last night; that's unacceptable.

MR. SHEFFLER: Yes, your Honor.

THE COURT: And if what you say is true about Dr. Pietra, that's unacceptable, too. I am not going to preclude you from using the charts, but I am going to give him the chance to look at them so he can cope with it for cross-examination.

MR. SHEFFLER: Yes, your Honor.

THE COURT: And that's not true of that video chart, but of all his cell diagrams, you can see if they're correct characterizations. Mr. Johnson said that his pathologist was here this morning and he resents having it brought up this afternoon when his pathologist isn't here anymore, except that he knew very well it was going to be brought up this afternoon and he could have called it to my attention this morning that his pathologist wasn't here, except he wanted to be in a situation where his pathologist

wasn't here. Now, we are going to either continue and recall Dr. Hannegan for cross-examination tomorrow, or we will stop his testimony and call him back tomorrow when you can have the direct and cross at the same time, when they can look at these charts.

Do you have any other charts you're using your case whatsoever with any other witness?

MR. MANNINO: We will, if Dr. Silver is called tomorrow we will have some.

THE COURT: When will they be ready?

MR. MANNINO: We have not made any final decision. They'll be ready, but we haven't made a final decision what we're going to do.

THE COURT: Well, when do you intend to make that, after he testifies?

MR. MANNINO: No, your Honor. After court is done today, Dr. Pietra said some things about asbestos which we now believe we'll have to have some testimony from Dr. Silver about that which we hadn't planned on doing before.

THE COURT: Well, when do you intend to show those charts to opposing counsel so they can have a chance to argue about them, if they want?

MR. MANNINO: Your Honor ordered us last week to show them the night of the day before they were to be presented and we'll show them by 6 o'clock tonight to the

other side.

THE COURT: By 6:00, not at 9 o'clock.

MR. MANNINO: We will show them every possible chart we may use of Dr. Silver's by 6 o'clock tonight.

THE COURT: That's agreeable. Now, what are we going to do about Dr. Hannegan?

MR. MANNINO: Well, your Honor, I guess the -- I told Mr. Levison this today -- we will finish our case tomorrow. All we have left is Dr. Silver, possibly Dr. Ettling in a deposition, so that Dr. Hannegan, basically that's all we can do today other than perhaps reading some of the depositions.

THE COURT: Well, then we'll have all the test-- we'll have his testimony today and I'll allow you to cross-examine on everything except the slides and we'll recall him for that limited purpose after you have had a chance to look at them and talk to your pathologist about it, unless -- is your pathologist available this afternoon? Maybe he could come down and you could take a half hour and talk to him.

MR. JOHNSON: I don't think he's available this afternoon.

THE COURT: Who is it you're referring to when you say --

MR. JOHNSON: Dr. Pietra.

MR. MANNINO: Could we ascertain -- and, your Honor, I'm not suggesting that behind the Court, I have no idea what Dr. Hannegan's schedule is tomorrow.

THE COURT: Well, I shall make inquiry. Also, I would not put you in a position now to say what you'll have in the way of rebuttal, since you haven't heard the whole case, but is there anything you know you're going to have yet that you're willing to state?

MR. JOHNSON: I can think of one witness, your Honor, who would be perhaps a half an hour witness.

THE COURT: All right. Well --

MR. MANNINO: May we know who that is?

MR. JOHNSON: In view of the case, the way the case stands now, I would prefer not to reply.

THE COURT: Well, wait until you finish. He doesn't have to tell you who his rebuttal is going to be.

I forgot to bring my calendar out. I will not be in a position to have a charging conference on Wednesday and I will decide whether we'll have the rebuttal Wednesday afternoon and then have a charging conference on Thursday; we may not sit on Wednesday. I may just use the time after the prison case, which may run on later than I anticipate, and I may use that time to review your points for charge.

We'll decide what we're going to do when we see how far you've gotten.

(End of sidebar discussion.)

THE COURT: Dr. Hannegan, there have been some charts that you intend to use that plaintiff's counsel has not seen until I don't know when.

MR. JOHNSON: I saw them at 2 o'clock, your Honor.

THE COURT: Well, Mr. Johnson decided to eat lunch. Therefore, I want to give Mr. Johnson a chance to review them with a pathologist or his pathologist or some pathologist. That doesn't seem to be possible now, but I will direct as you choose, Mr. Childs and Mr. Shein, to ascertain Dr. Pietra's availability either this evening, this afternoon or tomorrow morning so he can decide it.

What is your availability tomorrow?

THE WITNESS: I did not see the OR schedule when I left this afternoon or this noon, so I will have to try and arrange for a colleague to cover for me tomorrow afternoon.

THE COURT: Well, why don't you make a call there. I take judicial notice of the fact that it's about fifteen minutes from there to here, so you don't have to waste much time in traveling. You call there and you call Dr. Pietra and then we'll decide. We will recess for five minutes.

(Recess taken.)

THE COURT: Recess for five minutes.

(Recess.)

(Jury in, 2:28 p.m.)

THE COURT: You may be seated. We're now ready to proceed with the direct examination of Dr. Hannegan.

BY MR. SHEFFLER:

Q Dr. Hannegan, when we broke, I believe you were describing the classifications and did that chart that's in front of you help you in that description, sir?

A If I may, I think I mentioned that there is a broad classification, small cell versus non-small cell. If I may, the non-small cell are the tumors that we call things such as squamous cell carcinoma and adenocarcinoma which are tumors that attempt to recapitulate or remake things like skin, if you will, which is squamous cell carcinoma or adenocarcinoma which are gland-like carcinomas. That is outside the realm of small cell.

Unfortunately, the distinctions between some of these other other cells have been changing over the years. What is a small cell carcinoma is now classed, if I may point here, in a broad category called neuroendocrine carcinomas. A neuroendocrine carcinoma is a carcinoma which is called that neuroendocrine because it appears to have nervous tissue origin. A lot of studies have been done to demonstrate that some of these cells appear to come from the progenitors or the ancestors of things we would call nerve cells.

Then we broke them down into a classification that

is more classic and that was the small cell anoplastic carcinoma which is commonly called the oat cell. Then there is another small cell carcinoma which has been classified as an intermediate cell and a third division is the atypical carcinoid which it was called for many years starting as far back as 1968 and has now become better known as a well-differentiated neuroendocrine tumor. But all of them are in fact neuroendocrine type cell origin and are all classed in the small cell malignancy grouping.

It's confusing, I know it's confusing to pathologists at times also.

Q Doctor, the small cell anoplastic hyphen oat cell, the intermediate cell hyphen small cell and the atypical carcinoid or the well-differentiated neuroendocrine tumor, are those three different types of lung cancers?

A They are three distinct histologic -- back to look at it under this microscope -- the patterns are different and can be separated based on their appearance under the microscope, yes.

Q Doctor, how do you determine which cancer type a patient may have?

A Well, there are several methodologies but the most common has been the biopsy and a biopsy is a small piece of tissue removed from a larger mass of tissue which is then used to try and determine what that major mass is.

Sometimes it's done with biopsy forceps which are easily envisioned as two very sharp ice cream cone -- ice cream scoops that on a hinge that come together and pinch off a piece of tissue.

Q Do each of those three types that you have listed there have different appearances under the microscope?

A Yes. And at the same time there are occasional overlaps between them.

Q Doctor, what are the characteristic appearances of the well-differentiated neuroendocrine tumor under a microscope?

A Well, one would see cells which are larger than lymphocytes by about three to four times or larger. A lymphocyte is a commonly used standard cell because it's a white blood cell which is seen in almost any section. One can almost always find a lymphocyte. And they have a constant or relatively constant size.

And so we use those as a measuring tape, if you will, within that slide as to what those are.

Then it has a large vesicular or open nucleus, a nucleus that's vesicular. Vesicular means like a blister which means that light shines through it and it has a prominent nucleolus which means that a segment of the tissue within the nucleus itself is a dark spot.

Around --

Q Doctor --

A Yeah.
Q -- if I may, do you have a depiction or a diagrammatic depiction of what a nucleus and a nucleolus or nucleolus that you've been referring to is?
A Yes, we do -- I do.
MR. SHEFFLER: If I may, your Honor.
THE COURT: Yes.
BY MR. SHEFFLER:
Q Doctor, before we go further, was this prepared at your direction?
A Yes, indeed.
Q And would you just describe what this chart is representing?
A Okay. We felt that it would be better to demonstrate to you a diagram of these types of cells before we tried to show you any others. This is a diagram of essentially a normal cell. For this purpose this gray area is cytoplasm and this is a cell wall. Unfortunately in many pictures in histology the cell wall is indistinct but with this kind of space one can appreciate that there is cytoplasm.
This is the nucleus. This is the nuclear membrane and this is the nucleolus. So we have a representative, quote, normal, non-malignant basic cell of any type that shows a nucleus, cytoplasm and a cell wall.
As we described for the well-differentiated

neuroendocrine cell, this is a large nucleus and these are in relative proportion, normal to the malignant on these two. The well-differentiated has a large nucleus which is open and bubbly, if you will. These spaces represent where light will shine through. This is a dark dot, the nucleolus again and you can see that there's cytoplasm but certainly nothing of the amount that's seen here.

And the other one over there, the anoplastic small cell carcinoma cell is a dense, almost exclusively -- because you see we put no gray around it -- almost exclusively composed of nucleus. The chromaton is dark and that's what we call these dark spots in here is chromaton. It's made up of the nucleic acids or the chromosomes, if you will, and it's dense, compressed and almost entirely representative of slides that we see as nucleus. Virtually no cytoplasm present.

Q Doctor, is there a nucleolus that you can point out in the small cell?

A No, there really is not. One of the characteristics of the so-called anoplastic small cell are oat cell and again that's a terminology that gets us in difficulty at times. The oat cell is drawn that way because that's close to representing the anoplastic small cell. It's represented as an oat cell which is essentially what rolled oats or Quaker oats, if you will, would look like before they roll them

between two metal bars. It would have that somewhat almost carrot-shaped appearance.

Q Doctor, do you have some actual pictures of a well-differentiated neuroendocrine tumor that would demonstrate some of the characteristics you've been talking about?

A I do.

Q Are these the slides that you prepared for this discussion?

A Yes

MR. SHEFFLER: Your Honor, if I may?

THE COURT: Yes, you want to show the slides.

MR. SHEFFLER: If we could.

THE COURT: Yes. All right, who's going to show them?

MR. SHEFFLER: Dr. Hannegan will.

THE COURT: All right. Let's see, you may need some lights off although I notice that some lights are off here anyway but let's see if the slide comes up.

THE WITNESS: What I need is a third hand.

THE COURT: Well, you're going to show the slides and you're going to -- yes, that's right, you need the microphone. All right. Try on and we'll see if it can be seen.

BY MR. SHEFFLER:
Q Doctor, first of all, what is this picture that we're looking at?
A This is a picture which is a reproduction from an article on neuroendocrine tumors, well-differentiated neuroendocrine tumors which describe and represent the histology of the neuroendocrine tumor.
Q Could you point out for the jury what a cell looks like in this view?
A All right. This is composed of multiple, multiple cells. It would be best to take this right here or say this here and these are in fact the nuclei. I think I may be in somebody's vision there. Okay. In other words, a cell is outlined here with the nucleus. As you can see there's space between these nuclei so one has to suggest that there is cytoplasm there. The fact is that these are wide open vesicular nuclei and as you can see the black dots in them represent nucleoli.
Q Doctor, what magnification was this picture taken at, do you know?
A I believe this is approximately 400 magnification.
Q Is that 400 times what the normal --
A Yes, 400 times -- sorry.
Q Is that the only F magnification that you reviewed histology or slides of tissue at?

A No. As a matter of fact, one would normally start looking at slides at what we would class as scanning power which is really sort of like 50 times magnification. Only one goes to 400 magnification in a step-wise fashion up a gradation of magnifications. 400 is used more for representational purposes such as this whereas the others give an overall picture of the tissue.

Q Would you make a diagnosis of the cell type from the scanning power that you mentioned?

A No. A scanning power is used to get a view of the overall configuration of the tissue and its component parts rather than attempting to make a morphologic or morphology is its size and shape based on a very low power. One goes up to the next intermediate or slightly higher power for that.

Q Doctor, can you point out any lymphocytes? You mentioned the term lymphocyte and said that was a yardstick in relation of cells. Are there any lymphocytes you can demonstrate on this picture?

A Yes. There are a couple of cells that are of lymphocytic type. This one is approximately the size of a lymphocyte and another one such as this is. These are difficult at best in some of these kind of blown-up reproductions of black and white photographs.

Q Doctor, it appears that the cells are different shapes.

What does that -- is that of any significance to us?
A We use the term pleomorphism which means variation in size and shape to represent these and I think you can appreciate that this nucleus is elongated, considerably by comparison to this one and this one is almost round and there's certainly a distinct difference in the size between these two.
Q Doctor, is --
THE COURT: Could everyone see?
BY MR. SHEFFLER:
Q Is that difference in size and shape a characteristic of a small cell carcinoma or well-differentiated?
A Well, there is some variation in a -- when you say small cell, are we -- we're talking anoplastic small cell carcinoma of the oat cell type would be almost a uniform size whereas in the neuroendocrine well-differentiated tumor there is a considerable degree of variation in size and shape.
Q Can you distinguish for us, Doctor, what the size of a small cell or oat cell carcinoma cell would be? Is there anything you can compare that to on this picture?
A Well, if we said that this was the size of a lymphocyte we would have to say that a cell that's approximately one and a half to two times the size of a lymphocyte would represent the size of a well -- of a small cell of the oat

cell type. There is not really a good dark cell of that size although this comes about as close to it as possible. And even it's not the appropriate size.

Q Do you have any other pictures of a well-differentiated neuroendocrine tumor?

A Yes, I do.

Q Doctor, is this from the same article that you were referring to before?

A It is indeed from the same article. It shows another pattern of the well-differentiated neuroendocrine type tumor. Again we see these large open vesicular nuclei, the black dots which are quite prominent as nucleoli within the nucleus and there is obviously space between these of some considerable distance which would suggest that there's a degree of cytoplasm present in that slide.

Q Doctor, these cells seem to be forming some pattern. Is that significant in your diagnosis?

A This pattern which one sees around this empty space or what appears to be an empty space here is sometimes referred to as a rosette kind of pattern in the sense that -- or pseudo rosette -- in the sense that here is a space and here are somewhat ray-like appearances of these cells around this space and that's -- it's given the term rosette. You have to be rather imaginative when you use some of these terms.

Q The ray-like appearance, Doctor, is there a term that refers to that?

A That's sometimes called palisading, sort of picket fence, which is another way of palisade.

Q Is the picket fence or the palisading a characteristic of well-differentiated neuroendocrine as opposed to small cell carcinoma or oat cell?

A It is a rosette, however, is on occasion shared between the tumors but certainly is a characteristic shared that does not have the large open vesicular nuclei however that the oat cell --

Q Doctor, these cells -- I'm sorry.

A Excuse me.

Q These cells appear to be much larger than the cells in the previous picture, is that -- what's the reason for that?

A Well, there's approximately the same magnification although in fact if we use this as the size of a lymphocyte or this, I should say, is the size of a lymphocyte, you can see that these are several times the size of the lymphocyte. So it's a relative magnification difference.

Q Do you have any pictures of Mr. Gunsalus' cancer --

A I do.

Q -- that you can show us? If you would, sir.

Again, Doctor, first of all, would you identify what this -- where this picture came from?

A This is a picture which is a representative of the tumor of Mr. Gunsalus' autopsy tissue from his lung. I took the picture through my microscope using the slides that were provided to me.

Q And, Doctor, what magnification is this picture?

A This is approximately 400 magnification. There is a lymphocyte for comparison's size, if you will.

Q Now, Doctor, what are the characteristics that you see here that would lead you to conclude that Mr. Gunsalus' cancer was a well-differentiated neuroendocrine tumor?

A Well, I think that we've talked about the wide open nuclei with the space or the light shining through them which you can see here. We see dark nucleoli on a couple of spots here. You can probably actually see them better back there than I can up close. I can see that there are some here, they're open. There's also -- now, you're starting to see that there is some blue to pink cytoplasm around these nuclei. There's a supporting structure here which is fibrous connective tissue and they're clumping in arrangements around and on that fibrous connective tissue.

Q Doctor, would the cytoplasm that you see demonstrated there be consistent with a small cell carcinoma of the oat cell type?

A No. There's -- I think as we described, there's virtually no cytoplasm seen with an anoplastic small cell or

oat cell carcinoma.

Q The pleomorphism that you described before, Doctor, is it apparent in this slide?

A Well, I think so. We see a cell that's as large as this contrasted to one that's smaller but then we drop down to others. We see variation in the size and the shape. This one's somewhat oblong. This one is somewhat irregular. Variation all over the place in the size, shape and configuration of these cells.

Q Would that be consistent with a small cell carcinoma or oat cell type?

A Of the oat cell type, no. As we said, they're predominantly sort of a constant monotonous appearance of a small cell with little or no cytoplasm in a dark dense nucleus.

Q Doctor, do you have any slides that would demonstrate other features of the well-differentiated neuroendocrine tumor --

A Yes.

Q -- of Mr. Gunsalus?

A I do. This I think shows almost the rosette pattern. A certain degree of palisading is present here and again large open nuclei with some prominent nucleoli and certainly cytoplasm is present around these. When one says that there's an open vesicular nucleus, it doesn't mean that

every cell that's present within that tumor is an open vesicular nucleus but the preponderant cell of that type is open with the prominent nucleoli.

Q Doctor, can you point out a lymphocyte for the jury to use as a frame of reference on this slide?

A Okay. I would say that this is approximately the size of a lymphocyte.

Q And, Doctor, are the cells depicted in this photo consistent with the size of the cells of a small cell carcinoma?

A No. I think that one can appreciate that if that's the size of a lymphocyte, that this is certainly greater than two to three times that size and the anoplastic small cell or oat cell is only supposed to be one and a half to two times that size.

Q Doctor, you mentioned palisading. Do you have any photos that will show us the palisading effect of a well-differentiated tumor in Mr. Gunsalus' cancer?

A Yes, I do. I think that --

Q Let me interrupt you, if I may. Is this a slide that you prepared?

A Yes, it is.

Q Where is it --

A Again it's a photograph of one of the autopsy slides of Mr. Gunsalus' tumor. It -- I think you can well demonstrate

here this is a blood vessel. One even sees a lymphocyte within that blood vessel so we don't have to rely on their being in the tissue, we see it in the blood cell -- in the blood vessel where it's supposed to be for size comparison. And then I think you can appreciate that these cells appear to be lining themselves up in a fashion almost like rays or pickets aligned on that vessel wall.

Q Doctor, would you point out the cytoplasm around those cells, if any?

A Yeah. This is this sort of bluish material here and here and around all of these is certainly cytoplasm of that -- of those cells.

Q What in this picture would lead you to conclude that this was a well-differentiated neuroendocrine tumor and not a small cell, oat cell carcinoma?

A Well, I think the fact of the size almost alone but the fact that it palisades forms this pseudo or rosette-like pattern, the variation in the size and shape of the nuclei and the cytoplasm in particular as well.

Q Now, Doctor, what was the magnification of this picture?

A This is approximately 400X.

Q Do you have a picture of a lower magnification to show us this --

A Yes. This is at 200X and as you can see there's a -- we saw just a small segment of that same vessel and even this I

think even better demonstrates in some aspects the rays, if you will, of the cells lining up around that vessel and again here is our lymphocyte in there for comparison.

Q Now, Doctor, do you have any other pictures of 200 power --

A Yes, I do. This is at 200 power. The tumor again in the lung which I think demonstrates very nicely the large open vesicular nuclei arranged on this somewhat trabecular pattern or supporting structure arranged around and in clumps if you will, even sort of a pseudo rosette or rosette pattern here.

Q Doctor, can you distinguish any cytoplasm at this power on this slide?

A You can distinguish some cytoplasm. I think you can see that there's a certain degree of pink or magenta-type cytoplasm present in conjunction with many of these cells.

Q Would you expect to see that in a small cell carcinoma?

A No, I would not. A small cell of the anoplastic oat cell type, no.

Q Doctor, these cells seem to be almost in clusters of grapes. Would you expect to see that kind of clustering in a small cell carcinoma?

A I would see -- I would expect to see groupings of cells but certainly not clustering on a trabecular pattern of this supporting structure such as we see here of that type.

Q Do you have any pictures, Doctor, of a small cell carcinoma of the oat cell type?
A Yes, I do.
Q Now, where does this picture come from?
A This comes from the World Health Organization tumor typing set of lung tumors and it's one of their demonstration photographs for the anoplastic small cell oat cell type malignancy.
Q And what's the magnification of that?
A This is 200X.
Q And, Doctor, could you contrast for us the differences between this and what we have been seeing as typical of a well-differentiated neuroendocrine tumor?
A Well, I think in contrast as we can see here, these nuclei which are dark and dense are in fact not open. I don't see any nucleoli that I could demonstrate to you nor do I see really any cells that are open and certainly no cytoplasm around them.
Q Doctor, this is a little different color than the other slides. Is there a reason for that?
A Yes. It was stained with a special stain that was developed by the World Health Organization but in fact that supporting structure which we talked about with being somewhat blue with blood vessels in it is here with somewhat orangish appearance but the nuclei in both stains are dark,

dense and stained the same color more or less.
Q Doctor, would the difference in stains affect the presence or absence of cytoplasm?
A No. The cytoplasm should stain in any section that has cytoplasm, with this stain or any other of the standard light microscopic stains.
Q When Mr. Gunsalus' cancer was diagnosed, Doctor, at the VA --
A Yes.
Q -- what slides did they review?
A They reviewed slides from a biopsy which I believe was obtained from a bronchoscopy type biopsy.
Q Is that what you described before as the meatball type --
A Yes. The pincers, however you wish to describe them, they nip off a bit of tissue and then we examine it for tissue type and diagnosis.
Q Do you have any slides to show us of those biopsies?
A Yes, I took some photos of those biopsies also. This is in fact a one-to-one, in other words, even though it's blown up on the screen, if one had this glass slide in one's hand one would see that these are approximately the size of those biopsy pieces on that slide. In fact, there are two representations on this photograph, they were able to put two chunks side by side on the same glass slide. I

think that you can appreciate the fact that these are extremely dark in blue which sort of indicates at this power that there's a considerable number of nuclei present.

Q Doctor, it seems that -- at least in one or two of those pieces that there's a lot of wrinkling in the --

A Well, unfortunately when one is preparing slides, glass slides of tissue such as this, because of their small size and the manner in which they're prepared by cutting them after imbedding in paraffin, they have a tendency to wrinkle and form bubbles underneath them when they're floated on water and put on glass. So these are artifacts which means they are not inherent to the tissue itself but are something that we or whoever prepared them had happen to them as an accident, if you will, while they were preparing them. They are not part of the tissue itself in the sense that it's part of the disease process.

Q Doctor, is there a difference in the possibility of artifact in slides prepared from biopsies as compared to slides prepared from autopsy?

A Yes. As we mentioned, with the manner in which a slide is prepared or taken, a biopsy is taken with the -- it's almost crushed in the process of being taken, whereas in autopsy and/or surgical -- surgically removed tissue, one uses a sharp knife to incise or cut rather than clamp and crush.

Q What does that do to the appearance of the cells under the microscope?

A Well, in the particular instances we're talking about here, the crushed artifact has a tendency to disrupt the cells, push the nuclei together, squeeze the cytoplasm out of them, if you will, sort of like a tube of toothpaste and pushes them all together so that they become a conglomerate mass which is difficult at best to read.

Q Do you have any slides that would show us what you're talking about, Doctor?

A Yeah. I obviously took a few more slides at a higher power than this because we wouldn't want to make a diagnosis on a slide at this magnification. And I -- because crush artifact doesn't really demonstrate anything other than the fact that it's not well-demonstrable we put it up here at the edge. This is the crush effect where the slides have -- the nuclei have been squeezed together.

This is an artifact which is common in fact throughout all of the so-called neuroendocrine type tumors whether they be the anaplastic small cell or the well-differentiated neuroendocrine tumor, they are in fact are susceptible to this crush artifact.

Q Doctor, is there any characteristics on this view that would lead you to conclude that Mr. Gunsalus' cancer was a well differentiated neuroendocrine tumor?

A Yes, I think right here in the middle of the slide we have demonstrated a group of cells which show a large, a relatively open vesicular nucleus, here's an open space in there. Nuclei, I think are well demonstrated up here because this was sort of crushed and pushed around in the first place, it's not as thin as the ones that were done at autopsy, so they overlap a little bit, but one can appreciate the open nucleus and the nuclei in there.

MR. SHEFFLER: Thank you, Doctor, if you'll resume your seat.

Q Now, Doctor, turning to another subject, can you determine whether a person has had a significant exposure to asbestos by reviewing the pathology of their lungs?

A One can get an opinion of the exposure to asbestos by reviewing the histology or slides of lung, yes.

Q And what do you look for when you're making that determination?

A One looks for under light microscopy, which is all the slides that we've showed as light microscopy, we look for bodies which are called Ferruginous Bodies or asbestos bodies.

Q And what is an asbestos body, Doctor?

A Well, an asbestos body is a fiber of asbestos which the body or bodies, it deposited iron salts on and as such, have given those fibers a crust and a coat, if you will, some of

which are beaded, some of which are dumb bell shaped and which then make it visible to light microscopy, in fact a pure fiber of unadorned asbestos is not easily seen by light microscopy, they're too small.

Q Doctor, do you have a slide of an asbestos body?

A I do.

MR. SHEFFLER: If I may, your Honor? I don't think we need to dim the lights. We can just --

THE COURT: All right. How many other slides do you have?

MR. SHEFFLER: I think this is the only one.

Q Are these the asbestos bodies --

THE COURT: Well, you're right in front of it.

THE WITNESS: Yes. I think you can appreciate the fact that they are somewhat dumbbell shaped, they have an almost bead-like appearance. Some of them are broken so they're not well defined, but they've all had iron salts deposited on them to make them visible to us under the normal microscope.

BY MR. SHEFFLER:

Q Doctor, where did this slide come from?

A This is a slide from the -- a copy of the slide from the study set that was produced at the Armed Force Institute of Pathology on asbestos and asbestos-related disease, that's what that little logo in the lower right-hand corner

represents, that it's from the AFIP.
Q Now, Doctor, did you see any asbestos bodies such as these in your review of Mr. Gunsalus' lung?
A I did not.
Q Doctor, will asbestos bodies be found in a person who has -- who has had significant exposure to asbestos?
A Who has had a significant exposure, yes.
Q In fact, Doctor, will asbestos bodies be found occasionally in people who have had no asbestos exposure occupationally?
MR. JOHNSON: Objection, your Honor, leading.
THE COURT: Sustained.
BY MR. SHEFFLER:
Q Doctor, have you found asbestos bodies in persons who have never worked with asbestos?
MR. JOHNSON: The same objection, your Honor.
THE COURT: I'll sustain it. Why don't you let him talk about when he finds asbestos.
BY MR. SHEFFLER:
Q When do you find asbestos bodies in persons, Doctor?
A Asbestos bodies are seen on random examination of lung relatively rarely if the individual has not gotten an excessive burden of asbestos. If the individual has received an excessive burden of asbestos we find them frequently. One can do special digestion techniques on lung

tissue either from biopsies or from autopsy cases where one takes a standard size of lung tissue digested in basically what is household bleach because it destroys the protein around it and then we filter it and wash it and the asbestos bodies remained then on a small segment of glass slide which we can either stain with -- for iron or we can just look at it unstained because as you can see they have a nice brownish, golden appearance, which can be demonstrated then on the slide, and those can be found by digestion in almost all of us in some small amount, whether we've been exposed by working or just by walking around in the environment.

Q How many slides of Mr. Gunsalus' lung tissue did you look at, Doctor?

A Somewhere in the neighborhood of 50 to 60. I didn't actually count them.

Q Were some of those slides stained with a special stain to reveal asbestos bodies?

A They had been stained with an iron stain, a so-called Prussian blue stain which turns iron and iron salts blue.

Q In your review of those slides, Doctor, did you see any asbestos bodies?

A I did not.

Q Doctor, did you see anything in the pathology that you reviewed, whether in the report of the autopsy or in Dr. Harrer's deposition that would suggest that Mr. Gunsalus had

been occupationally exposed to asbestos?
A I did not.
Q Doctor, without pathological evidence of at least asbestos bodies can it be said with a reasonable degree of medical certainty that Mr. Gunsalus was at an increased risk for developing cancer as a result of asbestos exposure?
A I'm sorry, I didn't completely follow you.
Q Doctor, based upon your review and pathology, in the absence of asbestos bodies and the absence of any pathological changes, can you conclude with a reasonable degree of medical certainty that asbestos exposure had put Mr. Gunsalus at an increased risk for developing cancer?
A I can conclude from these studies with a reasonable opinion that he was not exposed to an excessive amount of asbestos and it played no part in the development of malignancy.
MR. SHEFFLER: Thank you, Doctor. No further questions, your Honor.
THE COURT: Mr. Johnson, are you going to take this witness?
MR. JOHNSON: Yes.
THE COURT: All right. See how far you can take him.
MR. JOHNSON: All right. Since, I've not heard what the witness said on direct it may make it short. Could

we take five minutes so I can --

THE COURT: Very well.

MR. JOHNSON: Thank you.

THE COURT: We'll take a five minute recess.

(Recess taken.)

(Court reconvenes.)

(Jury in at 3:20 p.m.)

THE COURT: You may cross-examine.

MR. JOHNSON: Thank you, your Honor. Your Honor, may I have Mr. Shein put up the -- one of the charts the Doctor was using?

THE COURT: Yes.

MR. JOHNSON: Thank you.

CROSS-EXAMINATION

BY MR. JOHNSON:

Q Doctor, that's the chart that you were just using a moment ago, with Mr. Sheffler; isn't that right?

A That's correct.

Q And what you're telling us is that Mr. Gunsalus' cancer was the kind of cancer that you have on the left; isn't that right?

A It was of that type, yes.

Q It wasn't the kind of cancer that's on the right-hand side; isn't that so?

A That's correct.

Q It wasn't an anaplastic small cell carcinoma cell; isn't that right?
A That's correct, of the oat cell kind.
THE COURT: You have to keep your voice up.
THE WITNESS: I'm sorry.
BY MR. JOHNSON:
Q It wasn't what you have up there on the right; isn't that so?
A It was not; that's correct.
Q Now --
MR. JOHNSON: May I approach, your Honor?
THE COURT: Yes.
BY MR. JOHNSON:
Q Doctor, have I just handed you a two-page report that was prepared in this case -- a two-page Answers to Interrogatories that was prepared in this case?
A That's correct, yes.
Q Would you turn to your testimony?
A Yes, proposed testimony, yes.
Q Doctor, would you read the -- first, the sentence that I'm handing to you, on your opinions?
A "It's further of the opinion that Mr. Gunsalus' cancer be histrionically classified broadly as small cell anaplastic carcinoma."
Q Doctor, isn't that exactly what you have up on the

board, on the right?
A No, no.
Q What do you have a --
A I have a sub -- when it says, broadly, it means that it is a member of the group as we've described with the other diagram of the small cell carcinoma grouping.
Q Doctor, what you call up on the right is an anaplastic small cell carcinoma; isn't that right?
A That's one of the -- yes.
Q That was prepared under your supervision?
A That's correct.
Q And that is what you just told us is not what Mr. Gunsalus had; isn't that right?
A That's correct.
Q However, in your report you classify Mr. Gunsalus' cancer as small cell anaplastic carcinoma; isn't that right?
A I believe it's prefaced with the term, broadly.
Q Doctor, you're telling us today that the term, atypical carcinoid applies to Mr. Gunsalus' cancer; isn't that right?
A That is synonymous with the term, well-differentiated neuroendocrine carcinoma, that's correct.
Q Doctor, does the term atypical carcinoid appear anywhere in the report of your opinion?
A No, because it is a term which while used most frequently in about 1968 has become somewhat out molded

1 although it is synonymous with the well-differentiated
2 neuroendocrine tumor.
3 Q And Doctor, do you remember in your deposition, you were
4 deposed by me a couple of weeks ago; isn't that right?
5 A That's correct, yes.
6 Q And you were asked about the histrionically diagnosis of
7 Mr. Gunsalus' cancer; isn't that right?
8 A That's correct.
9 Q Did you at any point in your deposition mention the
10 term, atypical carcinoid?
11 A No.
12 Q And Doctor, did you at any time state that all of the
13 small cell cancers are in the neuroendocrine group?
14 A I might not have at that point. I don't think the
15 question was asked of me in that way.
16 Q Doctor, by my count there have been at least four other
17 pathological analyses of Mr. Gunsalus' tumor; is that your
18 understanding?
19 A I believe at least two besides myself, yes.
20 Q Well, Doctor, the first time that Mr. Gunsalus' tumor
21 was histrionically classified was by a pathologist at the
22 Veterans Administration when he was first seen there for his
23 cancer; isn't that right?
24 A Yes, you're right. I'm sorry that is four of them.
25 Q And what the finding by the Veterans Administration

pathologist at that time was small cell cancer; isn't that right?

A I believe so, yes.

Q They didn't find neuroendocrine cancer; isn't that correct?

A They did not define it as such; that's correct.

Q And the pathologist at the Veterans Administration took a second biopsy some time later in Mr. Gunsalus' course of treatment; isn't that so?

A That may be so. I don't believe that I reviewed it.

Q You did not review the pathological reports of the Veterans Administration?

A I reviewed the pathology reports. I don't believe I saw that particular slide.

Q Doctor --

MR. JOHNSON: May I approach, your Honor?

THE COURT: Yes.

BY MR. JOHNSON:

Q Doctor, I'm showing you a document from Mr. Gunsalus' medical records. Do you see Mr. Gunsalus' name at the bottom of that page?

A I do, yes.

Q Now, is that a biopsy specimen that's in that report?

A Yes, it is.

Q And what's the finding by the Veterans Administration

pathologist?
A It's a biopsy of cervical lymph node which shows a small cell undifferentiated carcinoma by his classification.
Q What's the date of that?
A I believe that's the 4th of August, 1986.
MR. JOHNSON: May I approach again, your Honor?
THE COURT: You may. Maybe you could stay there if you have a few things instead of having to walk back and forth all the time.
BY MR. JOHNSON:
Q What is the document that I've just placed in front you?
A I believe that's the biopsy report of the endobronchial biopsy of the small cell carcinoma with necrosis undifferentiated type, at least that's what Dr. Park diagnosed in 1985, approximately the 30th of April, 1985.
Q Doctor, are you also aware that there was an autopsy done on Mr. Gunsalus by Dr. Harrer of Our Lady of Lordes Hospital in Camden, New Jersey?
A I believe so. I just showed you slides from those -- those slides.
Q And what was Dr. Harrer's histrionically diagnosis, wasn't it oat cell carcinoma of the lung?
A I believe it was.
Q And finally there was an analysis of the slides by Dr. Guiseppe Pietra of the Hospital of the University of

Pennsylvania; isn't that right?
A I believe so, yes.
Q At the time of your deposition you had never been shown that report by counsel for American Tobacco; isn't that right?
A I believe we looked at it then at that deposition.
Q But that was the first time you had ever seen that report; isn't that right?
A Yes.
Q Didn't Dr. Pietra diagnose the tumor as being oat cell carcinoma of the lung?
A I believe he did.
Q I take it Doctor, from what we've just said that the Veterans Administrations doctors got it wrong on their diagnosis; isn't that so?
A I believe there's a difference of opinion which I tried to demonstrate with my slides that in fact, there are fossae within that tumor from the Veterans Administration slides which have representations which I interpret to be that of a well-differentiated neuroendocrine carcinoma.
Q Doctor, you disagree with both of the analysis of tissue done by the Veterans Administration pathologists; isn't that right?
A Yes.
Q You disagree with the finding by the autopsies

physician Dr. Harrer; isn't that right?
A Yes.
Q You disagree with the interpretation found by Dr. Guiseppe Pietra of the Hospital of the University of Pennsylvania?
A That's correct.
Q And atypical carcinoid is an extremely rare form of tumor; isn't that right, Doctor?
A It's uncommon. I wouldn't call it as extremely rare.
Q It's far less common than small cell cancer; isn't that right?
A Correct.
Q And isn't that something that should be borne in mind in attempting to classify between these two tumors?
A I believe what the history of the classification from the well-differentiated neuroendocrine was that in fact, in the past it was lumped together with the small cell grouping. It was only in retrospect in study that in fact because of length in survival time and this slightly different histologic pattern, which I tried to demonstrate, that in fact what we are now classifying as the well-differentiated neuroendocrine tumor was then subclassified or I should say, separated out from the broader category of small cell anaplastic carcinoma.
Q And Doctor, with respect to the small cell category in

total, which you lump these in, you told us at your deposition that in your view small cell carcinoma of the lung was highly associated with cigarette smoking; isn't that right?

A I said that small cell carcinoma particularly anaplastic or oat cell was, yes. It was associated and a relative risk factor, yes.

Q Isn't atypical carcinoid also associated with cigarette smoking?

A I really do not claim to have expertise in that area, so I don't know what studies have or have not been done along those lines.

Q You don't know one way or another?

A That's correct.

Q Well, Doctor, you're very familiar with a fellow by the name of Darryl Carter, aren't you, Doctor?

A I believe so.

Q He wrote one of the textbooks that was used by the AFIP where you served during the late 70's and early 80's; isn't that right?

A I believe so.

THE COURT: May I speak to counsel at sidebar, please.

(Discussion held at sidebar on the record.)

THE COURT: I have a concern once again about

cross-examination and the technique. You may cross-examine him about his opinion and you may show by his -- if you elicit from him a statement that he doesn't know something then you may not cross-examine him about what someone else knows and said. You can use testimony to impeach his opinion but you can't use testimony to impeach an opinion he doesn't have or didn't give. So, that you can't use as a vehicle if that's what you're trying to do get in what Carter says or thinks about this. If you would offer an opinion that would contradict him in the textbooks or other opinion but you've done this in the cross-examination of other witnesses and it's an inappropriate technique and I will not permit you to do it. Now, if Carter said something about an opinion that he expressed that's okay, if it's about classification or if it's about anything he says, he doesn't know. If he won't express an opinion then you can't go on to give him someone else's opinion and ask him if he agrees or disagrees with it.

(End of sidebar conference.)

BY MR. JOHNSON:

Q In fact, Doctor, in reviewing these slides of Mr. Gunsalus, you expressed the opinion that his particular cancer was somewhat complex with neuroendocrine features and features of other forms of small cell tumors; isn't that right?

A I alluded to it in my direct that in fact there are features shared in common among several of the small cell or neuroendocrine grouping of tumors. So, that while the preponderant or predominate cell is that of the vesicular open nucleus and the rosetting and the palstating that indeed other features may be present, yes.

Q Well, in this particular case you describe Mr. Gunsalus' cancer as complex; isn't that right?

A Could you define complex for me?

MR. JOHNSON: Your Honor, may I just read from the Doctor's opinion section of the Answers to Interrogatories?

THE COURT: Well --

MR. JOHNSON: Or I'll put it in front of him if your Honor prefers.

THE COURT: The problem is that as we mentioned, Answers to Interrogatories are not something that this Doctor said, it is what opposing counsel informed you would be the nature of his testimony in complying with the Federal Rules of Civil Procedure. You may show him that answer if you wish and you may ask him if that's his view.

MR. JOHNSON: Your Honor, I'll do that, and I think we can cover the subject that your Honor is concerned about.

Q Would you read into the record that sentence under the opinion section of the Answers to the Interrogatories?

THE COURT: Well, just a minute, sir. I thought I

said that if it's from the Answers to the Interrogatories he can't read it into the record. If you want to ask him a question about I'll permit you and if you have any question, I'll see you at sidebar, but I thought we straightened out how these Answers to Interrogatories --

MR. JOHNSON: I'm sorry, your Honor, perhaps I misunderstood.

THE COURT: And please don't speak when I'm speaking or our court reporter will go crazy. We can't both speak at the same time.

MR. JOHNSON: Yes, your Honor.

THE COURT: I'll see you at sidebar.

(Discussion held at sidebar as follows:)

THE COURT: What are the Answers to the Interrogatories that we're talking about?

MR. JOHNSON: Do you want me to get it for you?

THE COURT: Well, if that's what you're going to ask him about.

MR. JOHNSON: I'm sorry, your Honor.

THE COURT: All right. This is what you were trying -- but the way you asked the question, you suggested it was his words and it's not his words, it is what the attorney said he was going to say.

MR. JOHNSON: Your Honor, we covered this in his deposition.

THE COURT: Well, then use his deposition. I don't mind if you confront him with what he said in his deposition.

MR. JOHNSON: What he said in his deposition is that these in fact -- where he in fact approved this and everything in it is correct.

MR. SHEFFLER: I wrote it, your Honor, I gave it to him.

THE COURT: Did you ask -- well, why can't you use his deposition? Did he say in his deposition it was complex or not, that's what you asked? You asked him -- the question you asked him before this, which is why I find it so misleading, is you said, didn't you say in your deposition it was complex and then he said, would you define complex for me, and instead of saying or you, yourself used in the deposition, you start bringing in Answers to Interrogatories which are not his words, it's not appropriate. If he said it in his deposition or maybe what he said in his deposition and since it is his words ask him to explain it, but I don't think -- it's just confusing to the jury and it's prejudicial and it's inappropriate treatment of a witness and while I don't usually interfere to protect the witness, when counsel doesn't choose to do so. In this case, the overall treatment of trial is my responsibility and I have to see that don't you abuse a

witness.

You ask him about his deposition. Don't you -- did he or did he not say that in his deposition.

MR. JOHNSON: I believe he did, your Honor.

THE COURT: Well, get and ask him.

MR. JOHNSON: All right, your Honor.

(End of sidebar discussion.)

BY MR. JOHNSON:

Q Doctor, did you not say in your deposition that in addition to features that led you to believe that this was an neuroendocrine tumor there were also features that you saw that were those of the classic small cell or oat cell variety?

MR. SHEFFLER: Objection, your Honor, this has been asked and answered.

THE COURT: Well, I'll allow it in the circumstances so he can lead up to his next question.

THE WITNESS: I believe -- I'm sorry, would you repeat it?

BY MR. JOHNSON:

Q Doctor, in addition to features that were consistent with the neuroendocrine subclassification, did you not tell me in your deposition that there were also features in this tumor of Mr. Gunsalus which were consistent with oat cell?

A I'm not sure that I said consistent but certainly that

are shared with it, yes.

Q By contrast there were no features in Mr. Gunsalus' tumor that would be consistent with any other subclassification of small cell; isn't that so?

A Yes.

Q So, the only two that seemed to have shared features in what you saw in Mr. Gunsalus were neuroendocrine and oat cell; isn't that right?

A Well, I believe, if I may, please, small cell has several different variations as well then as the oat cell on the one end and the well-differentiated neuroendocrine which shades off into carcinoid on the other end and I have said that they have shared features between them but to distinguish between the tumor that it was called, the so-called classic oat cell versus the neuroendocrine I don't see features that would lead me to be confused between the two.

Q Approximately how many hours have you put into this case?

A I would guess somewhere in excess of 60 hours.

Q When were you first retained?

A To be perfectly honest, sir, I don't have that down on my calendar. It had to have been sometime after the 30th of January, 1988.

Q And how much are you billing the American Tobacco

Company for your time?
A I believe the rate that our group uses is approximately $200 an hour.
Q Now, Doctor, with respect to cancer classification, have you ever read the 1979 Surgeon General's report on lung cancer?
A No, I have not.
Q Have you ever read the 1985 Surgeon General's report on occupational exposures in the workplace?
A I have not.
Q Isn't it true, Doctor, that with respect to cancer causation there is no safe level of asbestos exposure?
A I'm unaware of that. I know that asbestos has an increased risk for the development of cancer, exposed in excess quantities and I don't know what the level of so-called excess quantity is.
Q Do you know of any level of asbestos exposure which would be considered safe with respect to carcinogenesis?
MR. SHEFFLER: Objection, your Honor, he just answered the question.
MR. JOHNSON: No, I don't believe he did, your Honor.
MR. SHEFFLER: He just testified.
THE COURT: Well, I thought he said he didn't know, but I'll permit if there is anything that you wish to

amplify in regard to that question. Do you know of any level of asbestos exposure that's safe, is that the question?

MR. JOHNSON: Yes.

BY MR. JOHNSON:

Q Do you know of any level of asbestos exposure that with respect to causation of cancer is safe?

A As I said, I know that asbestos is a risk factor in the development of cancer. One, I guess, would like to believe that what little bit of asbestos we inhale by walking the streets of this country or the world are of sufficient nature not to be part of that risk factor.

Q Did you answer my question, Doctor?

A I thought I did.

Q Are you aware of the standards set by the Environmental Protection Agency with regard to asbestos exposure?

A No, I am not.

Q Are you aware of the reports of the Consumer Product Safety Commission with respect to asbestos exposure?

A No, I am not.

Q Are you aware of the standards set by the Occupational Safety & Health Administration with respect to asbestos exposure?

A As to the exact levels, no.

Q Are you aware whether those organizations consider the

levels they set to be safe or merely technically feasible?
A I cannot answer that with any sense of knowledge in that regard.
Q Doctor, isn't it a fact that it is the asbestos exposure itself rather than the development of interstitial fibrosis which leads to an excess number of lung cancer deaths with persons exposed to asbestos?
MR. SHEFFLER: Your Honor, I believe we're getting pretty far afield from the direct testimony here and I would object.
MR. JOHNSON: Your Honor, this was gone directly into by counsel.
THE COURT: There was some discussion of what happens to cells on exposure and I'll permit the question, with the understanding that you can answer yes, no, or you don't feel qualified to express an opinion. You don't have to answer because the question is asked, unless you can.
THE WITNESS: Thank you.
THE COURT: All right, now, do you remember the question?
THE WITNESS: No, I'd like to hear it again, please.
MR. JOHNSON: Well, let me back up and do it a slightly different way.
BY MR. JOHNSON:

Q You testified on direct examination that you did not find interstitial fibrosis in Mr. Gunsalus' lungs, isn't that right?
A The question was not asked but, no, I did not find the fibrosis.
Q And the fact that you did not find any asbestos-related disease in his lungs other than lung cancer, isn't that right?
MR. SHEFFLER: Objection, your Honor.
THE COURT: It's a very confusing question since everything else you've said has been premised on the fact that lung cancer is an asbestos-related disease. But if you can rephrase the question, I'll sustain the objection.
BY MR. JOHNSON:
Q Putting aside the cancer for a second, Doctor, you did not find any asbestos-related pulmonary disease in Mr. Gunsalus' lungs, isn't that right?
A I did not find any disease which I would attribute to asbestos exposure.
Q However, the absence of that pulmonary disease does not mean anything in terms of Mr. Gunsalus' risk of developing lung cancer from asbestos, assuming he had sufficient asbestos exposure; isn't that right, Doctor?
MR. SHEFFLER: Objection, your Honor, I'm not sure I -- objection to the form of the question.

THE COURT: The question can't be understood, I don't think, Mr. Johnson.

MR. JOHNSON: Oh, I believe that Dr. Hannegan does understand it, your Honor, but I'll be happy to make it simpler if the witness wishes.

THE COURT: Well, could I speak to counsel at sidebar a minute?

(Sidebar discussion held on the record as follows:)

THE COURT: I'm a little confused because it seems in this case we're not talking about risk apart from result, and even if he had risk -- I mean, if he didn't have cancer we wouldn't be here.

MR. JOHNSON: That's true.

THE COURT: So I'm not clear how he could see the risk from the slides or something or what difference the risk makes if there is no result.

MR. JOHNSON: Your Honor, there are some doctors who take the position, as I think Mr. Sheffler tried to elicit from Dr. Pietra, that interstitial fibrosis is necessary in order to attribute lung cancer to asbestos exposure. This doctor in his deposition stated that all that is necessary is exposure. Now he just said that he doesn't know of any safe level of exposure and on direct he didn't know.

THE COURT: He said that he attributed increased

risk to asbestos exposure, but he didn't know the level but he didn't think it was ordinarily walking around in the street.

MR. JOHNSON: I understand.

THE COURT: But what I'm thinking you're asking him, and maybe I misunderstand the question, is that there is something wrong with increased risk even if it never results in anything.

MR. JOHNSON: No, not what I'm asking at all.

THE COURT: Well, I think it's the way you're phrasing the question and that's my problem.

MR. JOHNSON: I'll try again. I'll be happy to try again.

THE COURT: But if you want to ask him whether you can suffer disease from asbestos even if there isn't fibrosis, that's okay.

MR. JOHNSON: All right, that's what I thought I did.

THE COURT: Well, that isn't what you asked.

MR. JOHNSON: I'll try again. I'll try to make that clear.

(End of sidebar discussion.)

THE COURT: The question is withdrawn; it will be reformulated, I think.

BY MR. JOHNSON:

Q Doctor, assuming that there are two individuals and both have the same level of asbestos exposure and all other relevant factors are equal, but one has interstitial fibrosis and the other doesn't, does the fact that the one person has interstitial fibrosis make any difference in terms of their risk for developing lung cancer?

A There are two schools of thought on that and I cannot say whether I ascribe to either one of them; I don't have sufficient facts. There is one school that says there is and there is another school that says there is no risk, increased risk.

Q Doctor, when I asked you at your deposition on that subject, didn't you tell me that there would be no difference in the risk if one person had interstitial fibrosis and the other didn't?

A For the most part, yes.

Q So you ascribed yourself to one school at your deposition, isn't that right?

A I guess I might have, yes.

Q And, Doctor, you accept the notion that with an asbestos-exposed individual at occupational levels who is also a smoker, there is then an even more highly elevated risk because of the combination of those two substances, isn't that right?

A I believe so, yes.

Q And according to -- would you accept that that risk is approximately 50 to 100 times baseline risk for developing lung cancer?

A I believe so, yes.

Q With regard to asbestos bodies which you talked about on direct examination, isn't it a fact that very few asbestos fibers become coated and become an asbestos body?

A The proportion that become coated relative the total number found in the lung is smaller, yes.

Q And certain investigators have estimated that ratio at one asbestos body to 100,000 asbestos fibers, isn't that right?

A That's correct, I believe.

Q And the -- is it not so that if you were able to find even one asbestos body in a hundred slides, that indicates excessive exposure?

A That is used as a rough guideline, yes.

Q Did you have a hundred slides to look at?

A No, I did not.

Q Did you have -- how many did you have that were even stained in such a way that would permit analysis of asbestos bodies?

A Somewhere in the neighborhood of approximately 20, I believe. I don't know the exact number; I didn't take my time to count them.

Q And with respect to asbestos fiber, when that fiber is of the chrysotile variety, does not that fiber deteriorate over time?
A That's outside my area of expertise, but I'm not sure that it does.
Q Just so we clear that up, you're not in a position to express an opinion whether asbestos fiber remains constant or deteriorates over time?
A What is your definition of "deteriorates over time"?
Q Dissolves in the case of chrysotile.
A No, I don't believe so.
Q Pardon me, Doctor, do you have an opinion or do you not have an opinion?
A I don't have an opinion.

MR. JOHNSON: If the Court will give me a moment.

(Pause.)

MR. JOHNSON: Your Honor, with respect to the guidelines that we've discussed with this witness, at this point I would stop my cross-examination.

THE COURT: Very well. I have to consult with counsel at sidebar about how we proceed from here, if you'll excuse me just a minute.

MR. JOHNSON: Oh, I'm sorry, I do have another question, your Honor.

BY MR. JOHNSON:

Q Doctor, with respect to the photographs that you have there, you said they were from an article. What's the article?

A The article -- and I must admit that I do best by the fact, by authors rather than its exact location -- one of the authors was that of Andrea Jordan and it had to do with the well differentiated neuroendocrine tumor.

THE COURT: Now can we see counsel at sidebar?

And this is off the record.

(Sidebar discussion held off the record.)

THE COURT: Ladies and gentlemen of the jury, we are going now to adjourn for the day; we've gone as far as we can go with the testimony. And I'll see you tomorrow morning at a time I'll tell you after I call chambers.

(Discussion off the record.)

THE COURT: 9:30. Now, I have not had the time to look at the television listings or I never know what's going to be in the newspaper, so in excusing you for the day I'll repeat my caution that you're not to watch any news or televisions programs about this case or about related matters. You're not to read about cigarette litigation in the newspapers and you're to keep an open mind. And that includes the radio, too. If something about this case or other cigarette cases is on the radio, turn it off or change the band. And I'll see you tomorrow morning at 9:30.

Thank you. Good afternoon.

(Jury out at 3:55 p.m.)

(Court adjourned.)

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